THE EFFECTS OF TAXES AND PUBLIC FINANCING PROGRAMS ON LOCAL INDUSTRIAL DEVELOPMENT...

A Survey of the Literature

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PREFACE

Local tax concessions and public industrial financing programs are gaining popular acceptance as ways State and local governments can promote economic development. They are of special interest as catalysts for development in rural areas where small new firms may need financial assistance. If effective means of promoting development of rural areas are to be found, information on the effects of these programs is badly needed.

Studies of the effects of these programs on local industrial development have been reported in a wide variety of publications, many of which are not readily available either to research workers or to the general public. Although some of the studies cited were made some time ago, these studies are still the basic sources of information on the effects of taxation on industrialization for planners and economists. This report brings together and summarizes the results and conclusions of a number of these studies. The report, however, offers no judgments-- other than those contained in the studies cited--about the usefulness of either tax incentives or industrial financing programs for promoting local industrial development.

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SUMMARY

Tax concessions and public industrial financing programs are being widely advocated as ways in which the development of rural America can be accelerated. Considerable doubt still exists, however, about the effectiveness of these programs in encouraging industrial development. This report summarizes the results of a number of the major studies of this question.

Studies on the effect of taxes and tax incentives on industrial location fall into three groups: those using surveys to estimate the importance businessmen place on taxes in their location decision; those attempting to determine the tax savings that firms may obtain through relocation; and those attempting to correlate taxes with economic growth.

The studies based on interviews with company officials found that, for most firms, taxes rank below such other factors as markets, transportation, and availability of labor in their influence on location decisions. Studies on tax savings available to firms generally concluded that differences in taxes, while existing, should not be important enough to influence site selection by established firms. In most cases, the tax savings available to firms that relocated were a small portion of both total costs and total geographically variable costs.

Studies correlating economic growth with tax levels have produced conflicting results. The differing findings of these studies, due at least in part to differences in the design of the studies, make it impossible to draw general conclusions from them.

The other form of public assistance to industry, public industrial financing programs, has not been widely studied, and consequently there is no adequate basis for generalizing about the effects of these programs. The existing studies do indicate, however, that financing programs benefit the community most when they provide credit to small and medium-size firms. According to studies on the availability of credit, these firms are also those most likely to need a source of credit.

Financing, of course, is only part of the development process. Economic development involves many elements, all of which must be taken into account to realize the full development potential of an area or region.

THE EFFECTS OF TAXES AND PUBLIC FINANCING PROGRAMS ON LOCAL INDUSTRIAL DEVELOPMENT

A Survey of the Literature

by Thomas F. Stinson
Economic Development Division
Economic Research Service

INTRODUCTION

The uneven pattern of postwar economic growth has produced regions where income levels are considerably below the national average, especially in rural America. Recently, these areas have been the subject of increasing public concern. In addition to the many ongoing efforts of the Department of Agriculture, regional economic development commissions and district planning bodies have been established to assist in upgrading many such areas. Special appropriations have been made for public works in some rural areas, and national attention has focused on problems of rural economic growth.

States have tried to attract new industry with programs providing low-cost financing for new or expanding firms, and with adjustment in the tax structure directed toward making the State more attractive to new industry.1/ Some States have provided for interim tax exemptions for new firms.

How effective are these attempts to attract industry? Do they actually influence industrial location decisions? Can a change in the structure of a State tax system reduce the number of small-business failures? Will a special financing program increase the number of small business starts? If financing programs and tax concessions produce no noticeable results, these industrial development incentives are undesirable and waste the taxpayers' money. However, if these practices can stimulate economic development they may be of value to the region. Even then, do they result in acceleration of national economic growth?

Few studies have looked at the effects that State financial assistance programs and differences in State tax systems have on industrial development within a State. However, several studies consider the impact of interstate tax differentials on economic growth. Interstate tax differentials provide savings to the firm similar to tax concessions and special financing programs. Therefore, analysis of these programs can indicate the effectiveness of State tax concessions and State financing programs.

Generally, studies of the effects of taxes on industrial development have used one of three approaches. One group of studies (1,9,10,12,14,17) employed surveys of business firms to estimate the importance which people in top management put on taxes in their decisions on plant location. A second group of studies attempted to assess the importance of taxes as a cost factor through

1/ For those not familiar with public industrial financing programs, see Stinson (19). Underscored numbers in parentheses refer to items in Literature Cited, p. 22.

statistical studies of taxes as a proportion of total cost or some measure of earnings. A third approach compared taxes paid by businesses in given areas with the growth rates of those areas. In this last case, the authors assume that low taxes should be associated with high growth rates if taxes are an important economic factor in location decisions. In addition to these three types of formal studies, some inferences can be drawn from the experiences reported by State development agencies and private industrial location consultants.

All four types of study assumed that taxes affect all firms (large, expanding firms, and small firms just entering the market) in the same way. This assumption may or may not be true. Only in the comparison of growth rates with taxes is an attempt made to overcome this problem. Yet, even in this instance, so many factors outside the analysis apparently affect the growth rate that the effects of taxes on small firms are uncertain.

Few studies have attempted to determine the effectiveness of State or local financing programs. These studies are usually parts of broader studies of all location incentives. In some, respondents were asked the importance of financial inducements. Others calculated the savings available to a firm through public financing and in some instances, compared them with the firms' other costs. This procedure offers guidance on the possible financial impact of a State loan program on firms which are planning relocation or expansion.

Though these studies suggest the effectiveness of public financing programs, the key to determining the value of a loan program rests with the determination of the existence or nonexistence of a structural credit gap. If an otherwise economic firm lacks funds needed to begin operation, public loans may be an effective device for stimulating economic development. If, however, no credit gap exists, that is, if any firm with a reasonable chance of success can obtain the necessary financial backing at the market rate of interest, all that occurs is the substitution of public for private funds, which by itself will not promote economic development. Because of the importance of the credit gap, studies dealing with its existence, its size, and its regional nature are included later in the report.

This report is a brief survey of studies on the influence that taxes and financial aid programs have on regional economic development. In this report, all studies done in the same general manner, regardless of whether they were concerned solely with taxes, or with taxes and financial assistance, are treated together. In this way, the reader can compare the effectiveness of these two separate techinques for stimulating economic development. Studies that use surveys are considered first, followed by the comparative cost analysis, and then by studies attempting to relate growth to the existence of the various types of inducements. Following these sections are sections dealing with the credit gap and with selected State experiences in both taxation and financing.

STUDIES USING SURVEYS

The survey has been the most popular nethod of determining factors that influence plant location. In survey research, an investigator selects a sample group of firms and asks them what factors are considered important in the selection of a location for their firm.

No two surveys are completely alike. The characteristics of the sample group vary; in some cases, firms are included which have an established location within a certain area, and in others only firms of a certain size are included. The questions asked in the survey may also cause responses to differ. As will be shown later, if the question asked is changed from "what factors would be (or should be) taken into account when selecting a new location" to "what factors were taken into account in the selection of firm's present location", different results are obtained. Different results are also obtained if a list of possible factors is used instead of an open-end question. All of these changes in the format of the survey contribute to the differences in the results of the survey. Consequently, in interpreting the results of surveys, the structure of the survey should be kept in mind.

Other limitations also exist in interpreting the results of these surveys. There may be a sizable problem of respondent error. The error may arise from two sources.

First, there appears to be a considerable difference between what firms think they would consider in selecting a site and what is actually considered. Because many surveys are concerned with actual location decisions made more than 10 years earlier, some respondents may have difficulty remembering what the actual reasons for location were. The respondent may have replied what he, at the present time, knowing what he now knows, would consider. Also, the respondent may not have made the decision.

A second possible source of error in the responses is more directly concerned with the process of actually selecting a plant site. Many have indicated that the selection of a plant site is at least a two-step process, where the first step is the selection of a general area within which access to labor, raw materials, and markets is about equal and the second step is the selection of a specific site within that area. Some responses to surveys may have pertained to the first step in the location decision, while others pertained to the second.2/

Others have indicated that there may be conscious overstatement of the importance of taxes by those who are attempting to gain sympathy for the tax problems of business (4). Still another difficulty is that most surveys exclude all small businesses, so no indication of the effect of taxes on the growth of small business is available.

The Importance of Taxes

Despite these limitations, it appears that the survey approach can provide several types of information about the effect of taxes on industrial growth. An indication can be obtained about how many or what percentage of the firms surveyed even consider taxes in their location decisions. Surveys can also provide an indication of the importance of tax costs in a location decision.

Two studies (table 1) show that a large percentage of the firms do not consider taxes when making location decisions. Over half in the Speigelman study (17) and over 80 percent in the Oregon study (15) indicated that their firms

2/ For two versions of a multistep location decision, see (21) and (22).

would not take taxes into account when selecting a site for expansion.

Table 1.--Replies to survey questions as to whether firms consider taxes in location decisions

Location, size, or type of firm	Type of question	Size of sample	Respondents	Would consider taxes: Yes	No	Move regardless	Would not relocate
		Number					
Large San Francisco firms	Would firm move to Oregon?	25	24	6	10	3	5
Cross-section of Oregon manufacturers	Were taxes studied before building plant?	800	134	26	108	---	---
Precision instrument manufacturers	Were taxes considered in selecting present location?	45	45	1/ 22	23	---	---

1/ Gave some consideration.

Source: (15,17, p.84)

Speigelman also found that 14 of the 45 firms interviewed had located where the firm considered taxes a disadvantage. He attributes location in high tax areas to be one of the prices the industry paid for obtaining the advantages of readily available labor and other services that a metropolitan area provides (17, p. 84). Although these studies indicate that the tax structure is of little concern to many firms which may locate in an area, both studies found some firms that do consider taxes when selecting a plant site.

The findings of other studies which were not directly concerned with this problem, reinforce the two surveys noted above. Table 2 is a compilation of the results of other surveys of factors influencing local decisions. Since many of these surveys are concerned only with the situation within a particular State, the lack of interest in taxes shown in some surveys may be due to a lack of alternative situations within the region. This might aid in explaining the differences found between the Strasma study of Massachusetts (21) and the Mueller and Morgan study of Michigan (12). In general (excluding the Strasma study) it appears that less than 10 percent of the respondents thought that the tax situation in an area is important enough to consider as a major factor in the location of a new plant.

The importance of taxes to those who do consider them in decisionmaking is much less clear. Most studies are not directed toward this type of question. Generally, however, it appears that even among those who consider taxes in deciding where to locate their plant, taxes do not strongly influence the decision. Speigelman found only one firm for which taxes were the significant factor in determining its present location, and only one other firm indicated

Table 2.--Firms that considered taxes an important factor in site selection.

Characteristics of firms	Number of firms	Type of survey or question	No. of respondents	Percentage mentioning taxes 1/
Moved to South in past 5 years	5,000	Requested list of factors considered important in site location (1)	1,180	10.76
Moved to Ohio after 1939; firms employed 25 or more persons	545	Interview plus questionaire; open-end question (9)	545	1.46
Massachusetts manufacturers	---	Questionnaire; asked if State or local taxes influenced site selection or remodeling (21)	196	16.05 local 19.08 State
Manufacturing firms which located in Texas about 1964 (10)	NA	Survey questionnaire; listing 22 reasons for locating firm (10)	131	12.98
Manufacturing firms which located in Texas about 1954 (10)	112	Open-end survey questionnaire 22 reasons for locating firm (10)	2/350	14
Business executives	4,000	Survey that included question: "Would your firm consider reasonable or low taxes as a factor in plant location?" (14)	2,047	66
Michigan plants	---	Interviews with executives who answered these questions: (12)	239	
---do---		Are taxes 1 of 5 most important factors in any location decision?		52
---do---		Were taxes the reason for site selection?		3
---do---		What advantages do you look for when considering relocation?		20
---do---		What factors do you consider before expanding business?		8

1/ Computed from responses that said that taxes would be considered or that they were considered important.

2/ Weighted returns

Source: (1,9,10,12,14,21)

that taxes had a positive influence on the selection of the firm's present site (17, p. 84).

In an Ohio study, three of the eight (out of a total sample of 545) who considered taxes to be important considered them to be the most important factor in their location decision (9). The Bergen and Eagen study showed that favorable tax structure was mentioned most often as the fourth or fifth most important factor, among firms that considered taxes at all (1). These surveys indicate that in most instances taxes are not the single most important factor in a location decision even for those firms which consider taxes important. More likely, taxes are considered as a secondary factor in the location.

Table 3 compares the responses to the question of why firms located in the area with responses to the question of what factors would be taken into account in future location decisions. Fifty-two percent stated they considered taxes important, but only 3 percent considered them in determining site location.

Table 3.--Factors that firms considered important and factors that they actually used in determining plant location

Reason for moving firm to site	Percentage that considered important	Percentage using to determine--	
		State location	Actual site
	Percent		
Labor--			
Costs	65	15	15
Availability	56	--	--
Unionism	33	--	--
Advantages	--	7	7
Proximity to--			
Markets	62	--	--
Materials (incl.transp.)	50	6	12
Auto industry	--	8	8
Traffic access	7	--	--
Marketing facilities	11	--	--
Water	41	--	--
Industrial climate	53	--	--
Taxes	52	1	3
Community factors	14	--	--
Zoning, other regulations	4	--	--
Local sources of financing	3	--	--
Personal reasons	--	50	33
Opportunity	--	19	18
Legal concessions, inducements, and encouragement	--	2	4
Area established as a center for the industry	--	1	2

Source: (12, pp.208-209).

The differences between the responses may be interpreted in several ways. Taxes may be more important in future location decisions than in present or past decisions, because of recent large increases in State and local taxes. More likely, however, greater emphasis is placed on the importance of taxes in hypothetical decisions than in actual decisions. In the actual decision such noneconomic factors as previously established ties to the local community may outweigh the tax cost.

In summary, the surveys show that the tax structure in an area does not appear to have an appreciable influence on its industrial development. The surveys show that a majority of the firms which might locate in an area do not even consider the possible tax bill when they make their final decision. Further, even firms which do consider taxes in the area do not normally place taxes in a high-priority position on the list of factors desired.

This is not to degrade the importance of taxes in individual instances, however, for as other studies have indicated, possible sites in some areas may be eliminated from consideration because of a reputation for high or unreasonable taxes (21). In other instances, firms may find all factors about equal and make their decision on taxes alone. Further, location decisions are not always made in an economically rational manner and some low-cost sites may be rejected because of reputedly high taxes. Generally, however, survey studies indicate that taxes do not play a large part in the location decisions of most firms, and that in those instances where taxes do enter the analysis their effect on the final decision is normally small.

The Importance of Financial Inducements

The limited amount of data available on the impact of financing programs on the location of industry makes it difficult to draw conclusions.

It appears, however, that the existence of financing programs does not usually attract industry to a particular area (table 4). The value of financing programs to firms already in the area is less clear-cut. One survey shows that in some instances the existence of public financing enabled the firm to expand. It also found a few small firms which would not have been able to begin operation without this financial aid. However, it appears that many of the larger firms presently making use of industrial development bonds could have financed their expansion through other sources.

Gold, in a study of the effectiveness of the Pennsylvania Industrial Development Authority, also reaches no firm conclusion on the value of a financial aid program (6). Generally, he found that industrial loan programs are much more likely to be effective when used to aid smaller firms. This study found that less than 20 percent of the small firms (firms of less than $500,000 net worth) which received subsidies would have built on the same scale and in the same place without the subsidy. In addition, nearly 50 percent of the medium-size firms would not have expanded or relocated without aid. For attracting larger firms (those with net worth greater than $5 million) Gold concluded that financing plans were of little value (6, p. 296).

Bond programs generally appear to be of questionable value as a location

Table 4.-- Percentage of firms surveyed that considered financing programs when selecting a location

Characteristics of sample firms	Size of sample	Percentage that considered a financing program important
	Number	Percent
Southern firms which relocated or had opened in the past 5 years(1):	1,180	8.55
Ohio firms beginning operation since 1939, which employ 25 or more (9)	545	6.97 consider community assistance and planning
Firms that use industrial revenue and general obligation bonds in 5 Southern States (7)	26	88.46 said they wouldn't or couldn't have expanded
Texas firms--1954 survey (10)	118 responses 350 when weighted	9.42
Recipients of loans from the Pennsylvania Industrial Development Authority (6)	100 small 42 med. 31 large	8.9 (8.8) small 62.5 (13) medium 28.6 (13.5) large said they would not have expanded in the same place and on the same scale without assistance

Numbers in parentheses are confidence levels.
Source: (1,6,7,9,10).

incentive when used to finance already established firms. With regard to the effectiveness of the financing programs in stimulating new industry, there appear to be too few surveys to support a valid conclusion.

STUDIES OF COMPARATIVE COSTS

Two methods have been used to determine tax costs for a firm. In one, firms in different States are asked what portion taxes constitute of either total costs or total revenue. This method suffers from a failure to consider like firms in like surroundings, and consequently yields only very general indications of the tax climate in a State. Differences in State tax bills may be hidden or obscured by differences in the firms' structures and financial situations in this type of comparison.

Cost comparisons can also be made by using model firms, where actual tax costs are computed for each model firm in a number of alternative locations.

Several problems exist with this approach. The nature of the local tax system provides one limitation. Administration, assessment practices, and assessment ratios vary so greatly both within and between States that it is very difficult to obtain adequate property tax estimates for an area without actually having property assessed. Further, even if good property tax estimates are obtained, the comparisons are valid only for use on an "average" firm in the cities for which the tax estimates were constructed. Comparisons between States on the basis of these estimates may be misleading, for as will be shown later, tax variations within the State may be greater than the interstate variations.

A second problem with model studies arises from the structure of the firm assumed for the model. The model firm is most often assumed to be of medium size, with average profit and costs. Models of this sort make it difficult to assess the effect taxes have on new firms, which are just beginning operation, and on smaller firms. Although it is possible to change the assumptions on which the model firm is based, in most cases this has not been done.

Comparative cost studies provide some indication of the impact that state and local taxes have on different industries as well as show an indication of the tax savings available to a firm which picks a low tax area for its plant.

The remainder of this section is devoted to the findings of some studies conducted in this area.

The Cost of Taxes

In a 1957 study of 30 interstate firms operating in Oregon and Washington, 23 firms indicated that their tax bills were lower in Washington. Of 38 such firms operating in Oregon and California, taxes were lower in Oregon in 23 instances and lower in California in 15. When taxes were calculated as a percentage of gross receipts, they were found to be equal to 2.9 percent of gross receipts in Oregon and 1.9 percent in Washington. For firms operating in both California and Oregon, taxes were 2.1 percent of gross receipts in Oregon compared with 1.8 percent in California. The savings available to a firm relocating in the lower tax State were equal to 0.97 percent of gross receipts for firms moving to Washington from Oregon and 0.3 percent for firms moving from Oregon to California (15).

Although in general the results obtained by surveying actual firms are slightly different than those obtained for hypothetical firms, the results in the Oregon report (15) do not differ greatly from those obtained by the Washington State Tax Commission in its study of the tax burdens on industry in five Western States (25). The Washington study used models of hypothetical firms having total costs of more than $1 million in four different industrial classes; food products, chemicals, fabricated metals, and electrical equipment. All State and local taxes which the firm might have to pay, including payroll taxes, were calculated for each of the four model firms. Inclusion of payroll taxes makes the Washington study more complete than many other studies of tax costs.

The Washington study found that taxes, as a percentage of total costs, ranged from 0.93 percent in the food product industry to 2.73 percent in the

fabricated metals industry. The savings in tax costs which could be obtained through relocation ranged from 0.43 percent of total costs in the chemical industry, to 1.17 percent in fabricated metals (table 5). Possible tax savings in dollars for a firm in these industries ranged from $4,400 to $11,700.

Table 5.-- Taxes as a percentage of total costs, selected industrial groups, 1963

Industry	High State	Low State	Difference
		Percent	
Food products	1.43	0.93	0.50
Chemicals	2.51	2.08	0.43
Fabricated metals	2.73	1.56	1.17
Electrical equip.	2.14	1.22	0.82

Source: (25)

Stockfish also used the hypothetical firm approach (20). Here, a firm with $1 million in total assets was postulated. The definition of tax cost was limited in this study to include only property taxes, gross and net income taxes, franchise taxes, and sales taxes. No payroll taxes were included. The study covered 17 States in all regions of the country, including four of the five States included in the Washington study. The findings of this study were presented showing taxes as a percentage of stockholder equity (table 6).

Table 6.--Taxes as a percentage of stockholder equity, selected industrial groups, 1961

Industry	High State	Low State	Difference
		Percent	
Food products	5.2	0.8	4.4
Apparel	7.1	0.7	6.4
Furniture	4.8	0.7	4.1
Pulp and paper	4.9	0.8	4.1
Chem. production	4.8	0.8	4.1
Primary	4.7	0.7	4.0
Fabricated metals	4.6	0.7	3.9
Electrical mach.	4.9	0.8	4.1
Instruments	4.8	0.8	4.0

Source: (20)

Stockholder equity was used as a base for comparison because it was felt that it might better show the effect of taxes on profit. Possible tax savings through relocation were found to range from $24,400 in the fabricated metals industry to $33,000 in the apparel industry.

The Upper Midwest Economic Survey also dealt with the question of the variation in the tax load on industry between States (27). Through a consolidation of data from various sources, a percentage difference in tax costs between the State of Minnesota and each of the other 49 States for each of several industrial categories was derived. The study included only property, income, gross receipts taxes, franchise, and license fees. No attempt was made to estimate the impact of interstate differences in sales, payroll, or business taxes. The findings of this study were similar to the findings of the Washington report (table 7).

Table 7.--Differences between high and low tax States as a percentage of total cost, selected industrial groups

Industry	Difference	Industry	Difference
	Percent		Percent
Food production	0.6	Printing & publishing	0.8
Pulp and paper	1.5	Lumber & wood products	0.9
Chemicals	1.3	Petroleum	1.4
Rubber	1.1	Stone	0.8
Primary metals	1.6	Fabricated metals	1.1
Nonelectrical machinery	1.5	Transportation equipment	1.7

Source: (27)

Generally, comparisons of taxes to total costs show that the tax differential between States for any particular manufacturing industry is 2.5 to 3.0 percent of total cost. In most cases, the difference appears to be less than 2 percent of total costs. One should not be misled by the small size of these numbers, however, for 2 percent of total costs of $1 million is a sizable sum to add to gross profit.

Comparative cost studies can also provide an indication of the answers to other questions. The Washington report is organized so that data are available on the tax burden to firms other than those making an average profit (25), pp. 22-23). Table 8 shows the percentage of total cost that taxes represent when different profit levels are assumed for the four industries covered in the report. These comparisons indicate that it is possible for a State tax system to discourage the growth of small business through a high tax rate on low-profit business. Although the data presented were for firms with total costs of $1 million, the difference between State and local taxes paid by a firm with

Table 8.--Taxes as a percentage of cost for different profit levels, selected industrial groups, 1963

Industry	Zero Profit			Average Profit			Twice Average Profit		
	High	Low	Diff.	High	Low	Diff.	High	Low	Diff.
Food products	1.46	0.84	0.62	1.48	0.93	0.55	1.71	1.02	0.69
Chemical products	2.03	1.61	0.42	2.50	2.08	0.42	3.05	2.16	0.89
Fabricated metal	2.43	1.44	0.99	2.73	1.56	1.17	3.04	1.69	1.35
Electrical equip.	2.01	1.06	0.95	2.04	1.23	0.82	2.49	1.36	1.13

Source: (25)

no profit and one with a "normal" profit may show the differences which exist for smaller firms. These percentage figures may even understate the percentage of taxes to total cost for small firms, since it is quite likely that, for firms below a certain size level, taxes do not decrease as rapidly as total costs.

The Washington study also provides some information on intrastate differences in tax costs. In table 9, the difference between the high and the low county for the States in the survey is shown. For nearly every industry, intrastate differences are almost as great, if not greater, than the interstate differences.

Table 9.--Low and high taxes in 5 States as percentage of total costs for selected industrial groups,1963

State	Food products	Chemical products	Elec. equip.	Fab. metals
	Percent			
Washington:				
Low	1.39	1.90	1.91	1.94
High	1.65	2.43	2.28	2.36
California:				
Low	1.25	2.17	2.47	1.90
High	1.59	2.82	2.36	2.98
Oregon:				
Low	1.20	1.87	1.73	2.11
High	1.94	3.29	2.77	3.24
Idaho:				
Low	1.35	1.90	1.63	1.97
High	1.61	2.47	1.99	2.37
Arizona:				
Low	0.87	1.90	1.47	1.16
High	0.99	2.28	1.27	1.61

Source: (25)

Comparative cost studies may also shed some light on the importance of differences in tax costs when compared with other geographically variable costs of the firm. The results of a study (5) of geographically variable costs for several industries in Michigan and other competing States are summarized below (table 10).

Table 10.--State and local taxes as a percentage of geographically variable costs, selected industries and States, 1959

Industry and tax	Ill.	Ind.	Mich.	Ky.	Ohio	Tenn.	N. C.
	Percent						
Fabricated metals							
State	0.4	0.4	2.5	3.0	0.7	---	---
Local	5.33	3.6	4.8	1.0	4.0	---	---
Total	5.7	4.0	7.3	4.0	4.7	---	---
Building products							
State	---	---	1.0	---	---	0.7	1.0
Local	---	---	4.1	---	---	0.5	0.4
Total	---	---	5.1	---	---	1.2	1.4
Chemical products							
State	0.09	---	2.9	0.9	0.9	---	---
Local	2.9	---	3.2	1.6	2.6	---	---
Total	2.99	---	6.1	2.5	3.5	---	---
Auto parts, type A firms							
State	---	---	1.1	0.5	---	0.9	---
Local	---	---	1.3	0.6	---	0.3	---
Total	---	---	2.4	1.1	---	1.2	---
Auto parts, type B firms							
State	---	---	0.6	0.2	0.08	0.3	---
Local	---	---	4.6	0.3	0.5	0.4	---
Total	---	---	5.2	0.5	0.58	0.7	---
Hardware							
State	0.01	0.07	0.6	0.9	0.05	---	---
Local	0.9	0.6	0.9	0.4	0.9	---	---
Total	0.91	0.67	1.5	1.3	0.95	---	---
Warehouse							
State	---	0.9	1.1	---	0.5	---	---
Local	---	4.1	3.5	---	4.2	---	---
Total	---	5.0	4.6	---	4.7	---	---

Source: (5)

Generally, it appears that the geographical variation in costs for other factors, such as labor, transportation, and raw materials, is so much greater than the variations in tax costs, that the firm would seldom consider the tax burden of a particular area under normal circumstances. In many instances the increase or decrease in tax cost for a new location was less than 5 percent of total geographically variable costs of the firm. This finding supports those who believe that tax costs are of minimum importance to firms which relocate.

In summary, it appears that although geographical variations in taxes do exist, tax costs are probably of secondary importance in the selection of a plant site. Comparative cost studies do indicate, however, that the tax differentials may affect the growth of new firms. It appears that interstate differences in taxes on new or less profitable firms may be rather large in terms of their effect on the revenue of the firm. Finally it appears that tax bills within a State may vary to nearly as great an extent as interstate tax differentials.

The Cost of Financing

The effect that financing programs have on the costs of a firm has also been studied. Benjamin Bridges, in a study conducted for the State of Wisconsin, calculated the savings available if the average interest rate paid by firms were reduced. Savings were compared with the value of total shipments of the firm. Although the results must be interpreted with care, due to the broad definitions of industry used, as well as the possibility that the firms receiving loans may have a greater ratio of net or gross depreciable assets (on which the cost of the interest was based) than the average firm which was covered by Bridges' model, this analysis does provide an indication of the effect of low-interest loans on a firm's costs as shown in table 11.

Table 11.--Savings as percentage of value of shipments by manufacturing industries if interest on gross and net depreciable and depletable assets declined, 1958

Industry	Savings based on gross assets if interest rate declined by-				Savings based on net assets if interest rate declined by-			
	1 pct. point	2 pct. point	3 pct. point	4 pct. point	1 pct. point	2 pct. point	3 pct. point	4 pct. point
	Percent							
Food products	0.20	0.39	0.59	0.78	0.12	0.23	0.35	0.47
Apparel and related	0.09	0.18	0.27	0.36	0.04	0.07	0.11	0.14
Lumber and wood	0.36	0.72	1.07	1.43	0.18	0.35	0.53	0.70
Paper and pulp	0.39	0.78	1.18	1.57	0.23	0.47	0.70	0.93
Chemicals and prod.	0.26	0.52	0.79	1.05	0.13	0.27	0.40	0.53
Rubber products	0.26	0.52	0.78	1.04	0.08	0.15	0.23	0.31
Leather and goods	0.16	0.32	0.49	0.65	0.08	0.15	0.23	0.29
Stone, clay, glass	0.29	0.59	0.88	1.17	0.12	0.25	0.37	0.50
Primary metals	0.48	0.96	1.44	1.92	0.22	0.44	0.63	0.87
Fabricated metals	0.31	0.63	0.94	1.26	0.18	0.35	0.53	0.70
Nonelectrical mach.	0.33	0.65	0.98	1.30	0.15	0.31	0.46	0.62
Electrical machinery	0.27	0.53	0.80	1.07	0.14	0.28	0.41	0.55
Transp. Equipment	0.30	0.59	0.89	1.19	0.14	0.28	0.42	0.56
Instruments, etc.	0.10	0.19	0.29	0.39	0.06	0.13	0.19	0.25
All manufacturing	0.30	0.60	0.90	1.20	0.16	0.32	0.47	0.63

Source: Benjamin Bridges, Industrial Incentive Programs, 1965 (3)

Bridges used the same industrial classifications that were used in the Upper Midwest Economic Survey (table 7). He found that, based on gross depreciable assets, the savings were from 0.09 to 0.48 percent of total value of shipments if the interest rate was lowered by percentage point, 0.18 to 0.96 percent with a decrease of 2 percentage points, and 0.27 to 1.44 percent if the rate was lowered 3 percentage points. If the interest rate was reduced by 4 percentage points, savings as high as 1.92 percent of the total value of shipments were found.

Bridge's estimates of the savings available to firms through a reduction in interest rates can easily be compared with Wonnacott's estimates of the possible tax savings available to firms which relocate (tables 7 and 11). It appears that the existence of a State program which would allow firms to borrow at an interest rate of 3 or 4 percentage points less than that required by private sources might provide a greater financial impetus to a new firm than a program which reduced taxes to the level of the lowest State.3/

Providing loans to new firms at rates 3 to 4 percentage points below the commercial rate for the particular firm is not an unreasonable objective for State financing programs. Edward C. Gooding of the Federal Reserve Bank of Boston estimated that firms similar to many of the smaller firms which use the public financing programs in existence would have been unable to obtain loans at interest rates of less than 12 to 14 percent (8). Consequently, it appears that on loans made to small businesses at interest rates of 6 to 8 percent would provide them with rather sizable savings (table 11).

Gold's study of the Pennsylvania Industrial Development Authority also included some estimates of the savings available to firms making use of the financing program. The savings to firms that use funds from the Industrial Development Authority are considerably smaller than those available to firms making use of industrial revenue bonds because the Industrial Development Authority finances a maximum of only 40 percent of the plant's cost, with 50 percent required from more traditional sources of financing and 10 percent from the local sources. Gold found that plant financing of this type reduced annual production costs by less than 1 percent in most industries, even with the assumption that alternative financing costs were 10 percent (table 12).

When revenue or general obligation bonds are used to finance plant construction, the amount of savings to the firm depends on both the type of bonds and on the firms. In the case of a large established firm using local revenue bonds, the interest rate will probably be decreased by between 1½ and 2 percentage points, at most. At the other extreme, a new firm financed through general obligation bonds may find a difference in interest rates of greater than 10 percentage points, if it could obtain private financing at all.

3/ This comparison is valid for a general case only. There is no way of determining the size of the savings to the firm in each industry because no exact relationship between total cost and total value of shipments can be calculated. It is reasonable to assume, however, that total value of shipments is not less than total cost for an established firm for any long period of time. Consequently, if the percentage of total value of shipments is greater than the percentage of total cost, the actual value of the percentage of total shipments must be greater than the actual value of the percentage of total costs.

Table 12.--Value of plant financing in relation to total annual costs of production, Pennsylvania, 1956-64

Industry	Annual savings as a percentage of output when interest rate is--		
	5 percent	6 percent	10 percent
	Percent		
Food	0.116	0.159	0.343
Tobacco	.055	.075	.163
Textiles	.145	.197	.427
Apparel	.037	.050	.108
Lumber and wood	.714	.973	2.160
Furniture and fixtures	.102	.139	.301
Paper	.514	.701	1.516
Chemicals	.353	.481	1.041
Rubber	.163	.223	.481
Leather	.063	.086	.187
Stone, clay,and glass	.390	.531	1.149
Primary metals	.565	.770	1.667
Fabricated metals	.208	.284	.614
Machinery, nonelectric	.241	.328	.710
Transportation	.249	.339	.734
Instruments	.200	.273	.590
Miscellaneous	.208	.284	.614

Source: (6)

These simple comparisons would appear to indicate that State credit programs may be more valuable in accelerating the pace of economic development than are adjustments in the tax structure. It should be noted, however, that more research is needed on the availability and the cost of credit in depressed and rural areas before the full impact of a State financing program can be determined.

STUDIES CORRELATING GROWTH WITH TAXES

Another approach for determining the impact of taxes on economic growth is the use of studies that correlate some measure of taxes paid with economic growth. This technique was also employed by Gold for determining the effect of State financial programs on growth. There have been three major studies correlating taxes and the growth rate. Their findings do not indicate a high correlation between tax levels and the growth of the economy.

The first study, conducted by Bloom in 1955, attempted to determine if a correlation existed between either increased manufacturing output or capital outlay of manufacturers, and total State and local per capita tax collection or the growth in per capita collection during 1939-53 and 1947-53 (2). No significant correlations were found and Bloom concluded that there was no demonstrable evidence that high tax levels had retarded the growth of the States involved.

There were several conceptual problems with the Bloom study. First, the

study was not limited to a definition of taxes which included only business taxes; instead, it covered all taxes paid in the States. It is possible that real differences in taxes on manufacturers were concealed by variations in taxes on consumers or on personal income. The study also did not analyze other factors influencing manufacturing growth. Wonnacott, in the Upper Midwest Economic Survey (27) points out that Bloom's findings can also be used to make the contrary case that taxes do have an effect on economic growth.

Many of the problems inherent in Bloom's study were overcome in an econometric study by Thompson and Mattilla (23). This study calculated the taxes paid per employee by business firms and compared them with growth in employment. The study concluded that, for 1947-55, there was no significant correlation between interstate tax differentials and employment growth in the 29 manufacturing industries they surveyed. This study was not able to concentrate on the marginal firms, however, so possible relationships between tax costs and growth or decline of marginal firms may have been obscured. Differences in the changes in types of tax were also ignored. Certain types of tax would appear to be important to firms in different industries and might possibly affect their growth rate.

Another study was done by Raymond Struyk for the Institute for Urban and Regional Studies at Washington University (22). Making use of data for 50 cities in 24 States, and separating the taxes on business by type of tax, he found that both total population growth and percentage population growth were related to the changes in taxes in the area. Although the correlation he found was rather low, this would be expected, for as he states, "Taxes certainly cannot contain the full answer to the puzzle of variation in regional growth. One would probably be more justified in being suspect of extremely high values than of the low values obtained." (22, p. 14.)

There are, however, some problems with Struyk's study as well. Nowhere is there an attempt to determine the effect of a population increase on per capita taxes. If economies of scale exist for government services, and if the communities selected for study are in a decreasing cost position, there should be some correlation between population growth and a slower increase in taxes. Other problems exist with regard to the effect of population increase on State aid programs and other intergovernmental transfers. Consequently, though Struyk's study provides new light in some areas, especially with his separation of the various taxes, many questions still remain unanswered about the effect that taxes have on economic growth.

Although the three studies discussed above all reach slightly different conclusions, in general they reinforce the findings of the survey and the comparative cost studies that were cited earlier. It appears that the level of local taxes has had little impact on the economic growth of an area. Taxes may, however, have had a secondary impact. This secondary impact is of such a small magnitude that it is very difficult to measure through a broadly based study such as those discussed above. The findings of the studies by Thompson and Mattilla and Struyk can be assumed to identify the limits of the possible relationships, with the actual relation probably falling closer to the lower limit.

Gold reached some slightly more optimistic conclusions in his study of the

effect of financing on local employment in Pennsylvania (6). He found a positive correlation between the number of loans issued and the growth in employment in both the State as a whole and in each county. When the loans were categorized by size of receiving firm, it was found that loans to large firms were ineffective in increasing county manufacturing employment. However, subsidies to small and medium-sized firms were found to contribute to increases in county employment.

This finding, coupled with his finding that the subsidy program had little effect on the location decisions of larger firms, would indicate that any public financing program might well be limited to smaller firms at no loss to the State's economy.

THE CREDIT GAP ARGUMENT

The value of State programs providing or guaranteeing loans made to new industry depends to a large extent on the existence of a structural gap in the private credit system. If there are businessmen with economically feasible projects who cannot obtain adequate capital from private lending sources, a program which provides capital to them is of value to society. If no credit gap exists, however, there is no need for State loan programs of any type for any firm which is economically feasible under the conditions of the market can obtain the necessary capital.

Most authorities agree that some sort of credit gap exists. It is generally agreed that a new firm faces a problem in obtaining adequate financing during its initial years.[5/] Although experts disagree on both the magnitude of the gap and the size of firm that is most in need of financing programs, small firms and firms in rural areas are usually included in the group of firms assumed to have inadequate access to credit.

Studies attempting to determine the existence of this credit gap and define it more closely have encountered several problems. A major problem which any study of credit encounters is the question of credit-worthiness. Here the basic question is whether the credit gap for small business exists solely because the firms are less credit-worthy than large firms, or whether the credit gap exists because of a tendency of investors to favor larger, already established firms to a greater extent than the difference in the credit worthiness of the firms allows. Although there have been several attempts to deal with this problem, none has been entirely successful.

The time period in which the major studies in this area were done presents

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4/ See, for example, U.S. Congress, Joint Committee on the Economic Report Volume and Stability of Private Investment, Hearings, 81st Cong. 1st Sess., 1949; U.S. Congress, Select Committee on Small Business, Problems of Small Business Financing, Hearings on H.R. 56, 85th Cong., 1st Sess., Nov. 1957; and U.S. Congress, Senate Com. on Banking and Currency, Credit Needs of Small Business, Hearings, 85th Cong., 1st Sess., June 1957. U.S. Congress, Financing Small Business, Rpt. to Com. on Banking and Currency and the Select Com. on Small Business by the Fed. Reserve System, 1958; and Small Business Financing: Corporate Manufacturers. Fed. Reserve Bul., Jan. 1961 47: 8-22.

a second problem. The major studies conducted by the Federal Reserve System resulted in the expansion of several Federal programs that attempt to deal with the problems of supplying adequate venture capital for small business. In recent years, previously established programs have also been given more funds, an action which may have provided a better opportunity for the small firm to obtain financing. The success of these programs in reducing or eliminating the credit gap has not been determined, although there is reason to suspect, as shown below, that the gap has not been eliminated.

Recent, less comprehensive studies of the availability of financing for small firms reinforce the findings of earlier studies. Bridges cites the records of private development corporations in making a case for the existence of a credit gap (3). Despite the fact that these firms charge rates of interest at or near the going market rate of interest, these corporations have prospered and had rates of return and profit rates similar to those of all commercial credit agencies. This record would suggest that these development corporations are meeting a demand for credit which traditional sources are not yet meeting. The success of public industrial loan and loan guarantee programs also indicates a deficiency in the private sector.

A study of the adequacy of venture financing in Utah (24), a State which does not have a financial aid program for industry, indicated that the amount of intermediate and long-term funds available for financing small business at present, and projected for the future, was inadequate. Other studies with findings similar to those in Utah include a study by the National Conference of Development Credit Corporations, which found that a need existed for funds meeting the intermediate credit requirements of small firms (13).

The Upjohn Institute reached similar conclusions in its study of Michigan's needs for credit. The study concluded that:

> "The blunt truth is that our existing financial institutions, either in Michigan or elsewhere do not provide adequately for some of the legitimate capital needs of growing industry in our economy...These unmet needs for capital exist everywhere; perhaps they are even more prevalent in prosperous areas than in depressed areas" (16, p.31).

The credit gap may be partially attributed to problems outside the structure of the financial sector. The workings of the private credit sector appear to be hindered by a lack of knowledge both on the part of the firm which is seeking credit and on the part of the lender. State industrial development commissions and State loan authorities indicate that in many instances firms come to them for financing simply because they do not know where else to go. The State development department or board is then able to inform these firms of possible sources of private and Federal financing, as well as sources of State financing. State development loan departments may also be able to aid the entrepreneur by putting together a financing package with funds coming from private, Federal, and possibly even State financing programs.

A lack of knowledge also exists on the part of commercial lenders. Before a firm will lend to a small new firm, it must have extensive knowledge about the quality of management and the background of the new firm and its product.

The cost of obtaining this information for each new firm desiring credit is said to be so high that it is uneconomical for lenders to consider requests for capital from new firms (11). In most instances, only requests for loans from known good managers for projects which have a high possibility for success are even investigated.

Because of the selectivity of the lenders, many economically feasible firms are not considered for private financing. State loans and loan guarantee programs may provide a court of appeals for new firms. In several instances, the investigation of the new firm and its proposed management conducted by the State development loan board has been accepted by private credit sources as being adequate for their needs. After the State approves a firm's application, private sources of credit have agreed to take full responsibility for the loan.

In general, structural problems apparently limit the ability of small new firms to obtain credit. Some of these problems are due to the nature of the private credit sector. In part, however, the financing problems of new firms appear to be the result of inadequate knowledge on the part of both the investor and the new firm. State development and loan guarantee programs may be ways in which both the credit gap and the information gap can be reduced for new firms.

STATE AND LOCAL EXPERIENCE

The preceding sections have shown that there is reason to doubt that a decision based on the economics of different locations would be influenced by the tax costs of any particular location. However, the assumption that location decisions are based solely on economic considerations is certainly open to question. Further, the cost studies have assumed perfect knowledge, or at least near-perfect knowledge, of comparative costs on the part of those selecting the location for the firm. This assumption is also questionable. In this section, an attempt will be made to provide an indication of how the real world compares with the "model" world used in some of the previously mentioned studies.

There has been more experience with business reaction to taxes than with business reaction to financing programs. Nearly every State has heard calls for lower taxes on business accompanied by the threat of firms being forced to relocate in lower tax areas if tax relief is not forthcoming. More recently, the additional possibility of high taxes limiting the growth rate of the State has also been raised in attempt to keep taxes low. If the local business community actually believes that taxes are hindering the growth of their businesses, and if outside firms believe that taxes in an area are unreasonably high, taxes may act as a barrier to growth, even if the taxes in the area are relatively low.

Strasma found that some firms refuse to consider locations in States which they feel are "high tax States" (21). These findings have been reinforced by those of several other studies. Among those who have found this type of reaction to taxes was McMillan, who cites a case where a firm settled in a town where tax costs were $106,000 lower, even though the wage differential between that and another town was $206,000 in favor of the town with higher taxes (10).

Industrial expansion in Baltimore is also used as an example of the effect

of taxes on industrial growth. In 1956, Baltimore repealed the tax exemption which had existed for manufacturing machinery and manufacturers' inventory. This action nearly doubled the State and local tax bill of the firms involved. At the close of 1957, 22 manufacturers had left the city, 15 of them stating that taxes were to blame. Further, only seven new industries entered the city during 1957, while in the three previous years, 26, 19, and 26 new firms entered the city. Total investment in expansion in the city was $10 million compared with $47 million the year before (21). Experience in Baltimore suggests that tax actions, if drastic enough, can have an effect on location.

A study made in the Milwaukee, Wis., area indicates that low taxes may encourage industrial firms to locate in a specific area. The study found that in the suburb of West Milwaukee, where taxes were 72 percent of the average of all suburbs and 59 percent of Milwaukee's, there was a high concentration of industry. The report stated that "the appealing tax island" feature of the village plus the fact that nearly two-thirds of the village is zoned for industrial use appears to account for the concentration of industry (18, p. 10).

Some States, taking into account examples of the effect of taxes on location decisions like those mentioned, have enacted statutes exempting new firms from the property tax. There is, however, no evidence that property tax exemptions have succeeded in attracting to a State a large number of firms which would not have located there anyway. In fact, in Louisiana, where new firms could receive a 10-year exemption from the property tax, it was estimated that only $25 million of over $2 billion of new investment covered by the exemptions would not have come into the State without the property tax exemption (26).

In December 1966, the Louisiana legislature enacted a program of tax concessions to new industry. Under this program, a firm which could locate in a State where taxes would be lower than they are in Louisiana may present its case before the Tax Contract Board. This board has the power to grant exemptions from all taxes except the property tax in order to neutralize the advantages any other States may offer. Evidently, it is hoped that by lowering tax cost even more, the State will be better able to compete with other States in attracting industry.

There is no doubt that some think that the taxes in an area are significant determinants of plant location. Some businessmen believe that taxes are a significant portion of the geographically variable costs, and that they are a cost which may be influenced through location and negotiation. Because some maintain that taxes are an important cost factor, a "tax illusion" may exist and taxes may have an effect on location far out of proportion to their importance as a factor cost.

The influence State lending programs and industrial development bonds have on development is difficult to determine from the information at hand. Certainly, the success of State loan and loan guarantee programs lends some credence to the argument that a structural credit gap exists. The success these institutions have had in lending at standard rates of interest to firms which could not obtain credit elsewhere shows that these programs are providing a needed service. The rising popularity of these programs might also indicate that States which do not have them consider financing programs to be an aid in stimulating growth.

Furthermore, the effectiveness of State loan programs cannot be judged by the value of the loans made or insured. Often when firms request State assistance, they can be referred to other sources of credit such as the Small Business Administration. In other cases, after the new small business is investigated and approved for State aid, private sources of credit can be found to back the firm so that State loans are not necessary. Consequently, the impact of State loan and loan guarantee programs is probably much greater than an examination of their balance sheets would reveal. Experience to date suggests that small business loan programs administered by the State do aid in promoting economic development.

With respect to industrial development bonds (both general obligation bonds and revenue bonds) the question of their worth is much more difficult to answer. It is difficult to determine whether States have increased their use of them because they consider that the bonds are a good way to promote economic development or whether many programs have been adopted only to maintain the State's competitive position with other States. One problem with industrial development bonds is that firms which should be able to finance their own expansion have used the bonds to obtain funds at a lower rate of interest. However, these "abuses" may have been balanced by cases where a firm was able to stay in business, or expand, or even begin operation because of the bonds.

The small general obligation bonds appear to have been used primarily to fill a gap in the credit structure. The larger bonds, especially the large revenue bonds, may have acted as a substitute for private financing already available. Little can be said about whether these bonds actually attract industry for it is difficult to predict what would have happened without the bonds.

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